THAT WHICH IS CLAIMED IS:

1. An inflatable blood pressure cuff assembly comprising:

an inflatable elongate cuff member having opposing long edges and opposing short edge portions with an inflatable fluid chamber therein; and

a resilient sleeve attached to a respective one of the opposing short edge portions of the inflatable elongate cuff member, wherein the sleeve comprises at least one rib support member.

2. A blood pressure cuff assembly according to Claim 1, wherein the at least one rib support member has an elongate flexible body configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

3. A blood pressure cuff assembly according to Claim 1, wherein the sleeve comprises at least one rib channel sized and configured to hold the at least one rib support member therein.

4. A blood pressure cuff assembly according to Claim 1, wherein the at least one rib support member is a plurality of laterally spaced apart rib support members configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

5. A blood pressure cuff assembly according to Claim 1, wherein the sleeve is air permeable and comprises a fabric that includes stretch fibers.

6. A blood pressure cuff assembly according to Claim 1, wherein the sleeve has a closed perimeter configuration defining an aperture extending in the axial direction, wherein the sleeve aperture is sized and configured to stretch to receive a limb of a patient therein during use.

7. A blood pressure cuff assembly according to Claim 6, wherein the sleeve aperture has a first configuration with a first width during periods of non-use and a second configuration with an expanded second width when in position on a patient, wherein, in the second configuration, the sleeve is substantially conformable

to and resides securely against a desired portion of the limb of the patient with sufficient compressive force so that it is able to maintain its desired longitudinal position to thereby inhibit slippage during use.

8. A blood pressure cuff assembly according to Claim 5, wherein the sleeve comprises nylon fibers.

9. A blood pressure cuff assembly according to Claim 5, wherein the sleeve comprises spandex fibers.

10. A blood pressure cuff assembly according to Claim 5, wherein the sleeve has opposing upper and lower edge portions, and wherein, in position on a patient, the sleeve is configured to have an elastic lateral stretch of at least about 15% at the lower edge portion to provide the second configuration width.

11. A blood pressure cuff assembly according to Claim 10, wherein the sleeve is configured to accommodate patients having limbs that vary in width by up to at least about 150%.

12. A blood pressure cuff assembly according to Claim 11, wherein the sleeve is sized and configured to accommodate patients having limbs that vary in width between about 100-205%.

13. A blood pressure cuff assembly according to Claim 1, wherein the sleeve has a frustoconical shape.

14. A blood pressure cuff assembly according to Claim 1, wherein the cuff member is bladderless.

15. A blood pressure cuff assembly according to Claim 1, wherein the cuff member comprises a pouch and an inflatable bladder that is configured to reside therein.

16. A blood pressure cuff assembly according to Claim 15, wherein the sleeve is formed of a fabric comprising nylon as a major constituent and spandex as a minor constituent.

17. A blood pressure cuff assembly according to Claim 1, wherein the sleeve comprises a sensor chamber.

18. A blood pressure cuff assembly according to Claim 17, wherein the sleeve comprises a sensor held in the sensor chamber.

19. A blood pressure cuff assembly according to Claim 17, wherein the sleeve comprises upper and lower edge portions, and wherein the sensor chamber is located proximate the lower edge portion.

20. A blood pressure cuff assembly according to Claim 19, wherein the sleeve sensor chamber has a lower edge portion that is seamless.

21. A blood pressure cuff assembly according to Claim 20, wherein the sleeve sensor chamber has a lower edge portion that is open.

22. A blood pressure cuff assembly according to Claim 19, wherein the sleeve further comprises a cable channel in communication with the sensor chamber.

23. A blood pressure cuff assembly according to Claim 22, wherein the sleeve cable channel is curvilinear.

24. A blood pressure cuff assembly according to Claim 23, wherein the sleeve cable channel includes an intermediate segment that is arcuate, a lower first segment that is substantially longitudinal, and an upper segment above the arcuate segment that includes lateral directional components.

25. A blood pressure cuff assembly according to Claim 24, further comprising a sensor and a cable attached to the sensor, wherein the sensor is held

proximate a lower portion of the sleeve and the cable is directed to travel through the channel and exit the cuff assembly proximate an upper portion of the sleeve.

26. A blood pressure cuff assembly according to Claim 1, wherein the sleeve is formed of an anisotropic material.

27. A blood pressure cuff assembly according to Claim 1, wherein the sleeve is attached to the cuff member in a releasably detachable manner.

28. A blood pressure cuff assembly according to Claim 25, wherein the sleeve is configured as a single-use disposable member.

29. A blood pressure cuff assembly according to Claim 1, wherein the sleeve is fixedly attached to the cuff member.

30. A blood pressure cuff assembly according to Claim 1, wherein the sleeve has opposing first and second short end portions, and wherein the first end portion is configured to releaseably attach to the cuff member and/or the second short end portion of the sleeve.

31. A blood pressure cuff assembly according to Claim 1, wherein the cuff member and sleeve are configured to accommodate both the left and right arms of patients.

32. A blood pressure cuff assembly according to Claim 1, wherein the assembly is configured for ambulatory blood pressure measurements.

33. A blood pressure cuff assembly according to Claim 1, wherein the assembly is configured for stress test blood pressure measurements.

34. An inflatable blood pressure cuff assembly comprising:

an inflatable elongate cuff member having opposing long edges and opposing short edge portions with a fluid chamber therein, in operation, the short edge portions

being configured to wrap about a body portion of a user and connect to each other; and

a resilient sleeve configured to reside under the wrapped cuff member, wherein the sleeve comprises at least one rib support member.

35. A blood pressure cuff assembly according to Claim 34, wherein the at least one rib support member has an elongate flexible body configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

36. A blood pressure cuff assembly according to Claim 34, wherein the sleeve is configured with at least one rib channel sized and configured to hold the at least one rib support member therein.

37. A blood pressure cuff assembly according to Claim 34, wherein the at least one rib support member is a plurality of laterally spaced apart rib support members configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

38. A blood pressure cuff assembly according to Claim 34, wherein the sleeve remains unattached to the cuff member during operation.

39. A blood pressure cuff assembly according to Claim 34, wherein the sleeve is releasably attachable to one of the short edge portions of the elongate cuff member.

40. A blood pressure cuff assembly according to Claim 34, wherein the sleeve is fixedly attached to the elongate cuff member.

41. A blood pressure cuff assembly according to Claim 34, wherein the sleeve includes opposing first and second short end portions, and wherein the first end portion is configured to releaseably attach to the cuff member and/or the sleeve second end portion.

42. A resilient support sleeve with externally held biosensor comprising:

a resilient sleeve body comprising:

a sensor chamber and curvilinear sensor channel disposed intermediate opposing primary surfaces of the sleeve body for positioning a sensor and associated cabling therein; and

at least one rib support member.

43. A sleeve according to Claim 42, wherein the at least one rib support member has an elongate flexible body configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

44. A sleeve according to Claim 42, wherein the sleeve is configured with at least one rib channel sized and configured to hold the at least one rib support member therein.

45. A sleeve according to Claim 44, wherein the at least one rib support member is a plurality of laterally spaced apart rib support members configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

46. A sleeve according to Claim 42, further comprising a sensor having a cable associated therewith, the sensor held in the sleeve sensor chamber and the sensor cable held in the sensor channel, wherein the sensor is adapted to take a biophysical measurement of a patient during use, wherein the sleeve body has a closed perimeter configuration defining an aperture extending in the axial direction, wherein the sleeve aperture is sized and configured to stretch laterally to receive a predetermined anatomical body extremity, digit, or limb of a patient therein during use, and wherein the sleeve aperture has a first configuration with a first width during periods of non-use and a second configuration with an expanded second width when in position on a patient, so that when in the second configuration, the sleeve is substantially conformable to and resides securely against a desired portion of the extremity, digit, or limb of the patient with sufficient compressive force so that it is

able to maintain its desired longitudinal position and hold the sensor in a desired location against the patient to thereby inhibit slippage during use.

47. A sleeve according to Claim 42, wherein the sleeve is air permeable and comprises stretch fibers.

48. A sleeve according to Claim 46, wherein the sleeve comprises upper and lower edge portions, and wherein the sensor chamber is located proximate the lower edge portion.

49. A sleeve according to Claim 48, wherein the sensor chamber has a lower edge portion that is seamless.

50. A sleeve according to Claim 48, wherein the sensor chamber has a lower edge portion that is open.

51. A sleeve according to Claim 46, wherein the cable channel includes an intermediate portion that is arcuate and veers from a first lower substantially longitudinal direction at the sensor chamber to the arcuate portion and then to a second substantially lateral direction at a top portion of the sleeve.

52. A sleeve according to Claim 51, wherein the sensor is held proximate a lower portion of the sleeve and the cable is directed to travel through the channel and exit an upper portion of the sleeve.

53. A sleeve according to Claim 42, wherein the sleeve body has opposing first and second short edge portions that are releaseably attachable to each other.

54. An automated blood pressure monitoring system, comprising:

a plurality of inflatable blood pressure cuff assemblies, each sized and configured to accommodate a different patient size range, each cuff assembly comprising an elongate cuff member having opposing long edges and opposing short edge portions with an inflatable fluid chamber therein and a resilient sleeve having a

predetermined patient size range that is attachable and/or attached to a respective one of the opposing short edge portions of the inflatable elongate cuff member, wherein the sleeve comprises at least one rib support member;

an inflation unit in fluid communication with a selected one of the blood pressure cuffs and configured to generate a pressure sufficient to restrict blood flow in a selected artery of a patient proximate the sleeve and the blood pressure cuff;

means for releasing the inflation pressure in the blood pressure cuff; and

means for detecting a signal corresponding to blood pressure measurements of the patient.

55. A system according to Claim 54, wherein the sleeves are fixedly attached to the corresponding cuff members.

56. A system according to Claim 54, wherein the sleeves are releasably attached to the cuff members.

57. A system according to Claim 56, wherein one of the opposing sleeve short edge portions is configured to be releaseably attachable to the other sleeve short edge portion and/or the cuff member to define as closed sleeve having an axially aperture extending shape.

58. A system according to Claim 54, wherein the at least one rib support member has an elongate flexible body configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

59. A system according to Claim 54, wherein the sleeve comprises at least one rib channel sized and configured to hold the at least one rib support member therein.

60. A system according to Claim 59, wherein the at least one rib support member is a plurality of laterally spaced apart rib support members configured to inhibit an upper edge portion of the sleeve from rolling down when in position on a user.

61. A system according to Claim 54, further comprising a kit of replacement sleeves that are configured to be individually selectably releaseably attachable to the blood pressure cuff members.

62. A system according to Claim 61, wherein the sleeves are arranged in different predetermined sizes and are configured to be disposable single-use sleeves.

63. A system according to Claim 54, wherein the system is an ambulatory blood pressure measurement system.

64. A system according to Claim 54, wherein the system is a stress test blood pressure measurement system.